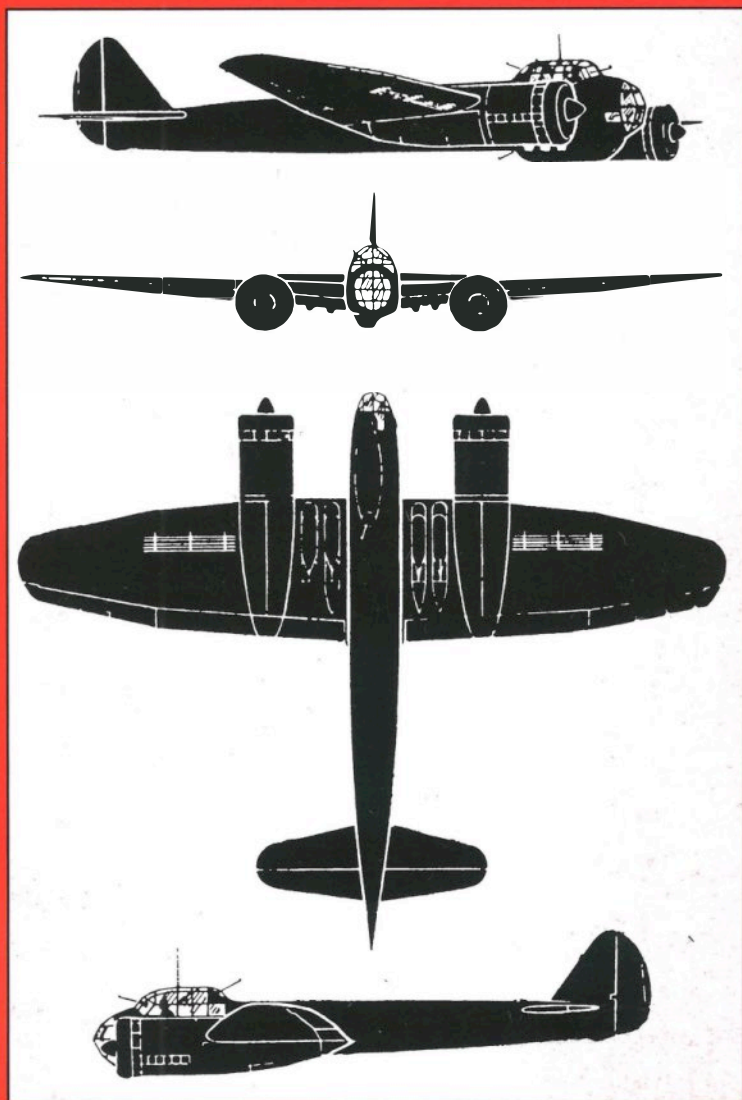


LUFTWAFFE OPERATIONS OVER BRISTOL 1940/44



JOHN PENNY

THE BRISTOL BRANCH OF THE HISTORICAL ASSOCIATION
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Luftwaffe Operations over Bristol 1940/44 was first published in this series in 1995. It provides a different view of the air raids on Bristol in World War II by studying the intentions of the German Air Force and the results of their efforts. Much of the material used was drawn from the Luftwaffe archives and matched with that drawn from British sources.

The author has been studying this subject for over twenty years and has produced an enormous archive of which this account only represents a small part. He has also written *The Air Defence of the Bristol Area 1937-44* and *Bristol's Civil Defence during world War Two* which have been published in this series.

The publication of a pamphlet by the Bristol Branch of the Historical Association does not necessarily imply the Branch's approval of the opinions expressed in it.

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Cover Illustration: 'Junkers JU 88 A1 Long Range Bomber' as shown on Aircraft Recognition Cards issued to Observer Corps and military personnel. The Junker JU 88 was used throughout the period covered by this pamphlet.

LUFTWAFFE OVER BRISTOL 1940/44

Strategy, Tactics, and Results

Between June 1940 and May 1944 the Luftwaffe are known to have lost 96 aircraft, with others suffering various degrees of damage during operations against targets in the Bristol area. This resulted in the death of least 240 German airmen, with a further 60 being injured. The military defenders of the Bristol area by contrast escaped with remarkably few fatalities. R.A.F. casualties amounted to three pilots killed whilst intercepting raids directed at the city, with a further six local barrage balloon operators losing their lives as a result of enemy air attacks. In addition the Army, which fired a total of 59,745 heavy anti-aircraft shells and 451 'Z' rockets in the Bristol Gun Defended Area, lost two searchlight operators, five anti-aircraft gunners, and three bomb disposal technicians. Nevertheless, many of the bombers reached their objectives and according to German figures compiled in 1944 Bristol was the fourth most heavily bombed city in the country during the period August 1940 to June 1941, with only London, Liverpool, and Birmingham receiving more attention, while Coventry, synonymous in Britain with widespread destruction, was in seventh place. Material damage to the area had in reality been serious, and at the end of the war Bristol City Council announced that 89,080 properties had been destroyed or damaged by enemy action, and this included 81,430 dwelling-houses and shop flats, of which number 3092 were either totally destroyed or subsequently demolished.

From the declaration of war on September 3rd 1939 until May 10th 1940 both the R.A.F. and the Luftwaffe had refrained from making deliberate attacks on each other's towns and cities. However, with the start of the German army's westward thrust into the Low Countries and France came a change of policy, and British bombers immediately

began night operations against the Ruhr area. This bombing of Germany infuriated Hitler, who on May 24th ordered that retaliatory attacks were to be carried out against Britain as soon as it became practical, and this situation arose just prior to the French capitulation. The objective was "to cripple the English economy by attacking it at decisive points", and in the Bristol area the selected targets were the Bristol City Dock and the harbour installations at Avonmouth and Portishead, the Bristol Aeroplane Company's plant at Filton, and Parnall Aircraft at Yate. As the subjugation of France neared its completion the bomber units of both Luftflotte 2 and 3 began to move their aircraft onto captured French airfields, and it was decided that Luftflotte 2, based in the Low Countries and Northern France, was to attack targets in the east of England, while Luftflotte 3, whose aircraft were to operate from airfields south of the Seine, was to concentrate on the western side of the country, which of course included Bristol.

At first German air operations over Britain were carried out on a small scale, and these began with light probing raids by night, normally in *Staffel* strength, but sometimes carried out by as few as two aircraft on one target. As it turned out the damage caused by the bombers was tiny, but their nuisance value was considerable, causing great disruption to both industry and the civil population who were forced into their air raid shelters night after night. They were, in addition, a valuable way for the bomber crews to learn the art of night navigation. However, as a result of the premature use over Britain of the secret *Knickebein* radio beam bombing and navigation aid, the R.A.F. was able to quickly put into operation effective counter-measures. This was to deprive the Luftwaffe of the only electronic bombing system available to the whole bomber force, and was their first major error of the campaign against Britain.

The first attacks carried out against the West Country took place on the night of June 19th 1940 when the Bristol Aeroplane Co. at Filton, as well as the docks at Avonmouth and Southampton, were targeted. Although the raiders claimed to have successfully attacked the B.A.C. plant the facts were somewhat different, as Portishead was as near as the German bombers came, the lone Heinkel He 111 dropping the first bombs in the area at 02.12 hrs. From then onwards raids against Britain were undertaken almost every night, while at the beginning of July, in order to sap the strength of the British even further, it was ordered that during daylight hours precision pinpoint attacks were to be undertaken against specific important targets. These surprise raids were to be carried out by aircraft, either singly or in small groups, only with the aid of suitable cloud cover, and the first such mission flown

against a target in the Bristol area was that attempted on Portishead Docks by three Junkers Ju 88's on the afternoon of July 3rd. In early July the Luftwaffe were successful in gaining air superiority over the English Channel, but this victory was tactical rather than strategic, as the British were able to transfer the majority of their shipping to ports on the western coast, much more difficult and dangerous for the Luftwaffe to reach in daylight. The harbour facilities such as those at Bristol, Avonmouth, Newport, Cardiff, Swansea, Liverpool, and Glasgow now assumed great importance to the British economy, and night harassing attacks against them, as well as the local aircraft industry, were to continue throughout the summer. In addition, it was ordered that aerial minelaying was extended to the seaways on the western side of the country. The Bristol Channel and Severn Estuary received their first visit on the night of July 17th, and in order to stretch the defences as far as possible this work was often carried out on nights when the normal bomber force was not operating.

By mid-July it had become obvious to the German High Command that Britain had no intention of suing for peace, and so on the 16th Hitler issued a directive for "the Preparation of a Landing Operation against England". The code name for the assault was to be *Operation Sealion*, and as a prelude to the invasion, the planned elimination of the R.A.F. and its associated aircraft industry was scheduled to begin early in August. The day for its launching was given the code name of *Eagle Day*, by which time the striking forces of Luftflotte 2 and 3 were to be at their intended strength of approximately 1200 long range bombers, made up of He 111's, Ju 88's and the semi-obsolete Dornier Do 17's. *Eagle Day* was provisionally fixed for August 10th, but due to poor weather conditions was postponed until the afternoon of August 13th, when the full might of the Luftwaffe was at last unleashed against Britain.

The following afternoon German bombers ranged far and wide over the West of England and Wales, engaged in armed reconnaissance against R.A.F. airfields and aircraft factories, but the heavy losses they sustained at the hands of the British fighters proved to the Luftwaffe the inadvisability of sending unescorted bombers on daylight sorties over those parts of England which were out of range of their single engined fighters. The massive air battles of mid-August, were therefore to take place mainly over South East England, and the majority of short range German fighters were transferred for operations over that area. With Luftflotte 3's bombers devoid of their fighter cover a switch was made back to night bombing, which was also scaled up, and a series of the heaviest raids yet seen on the Bristol

area soon started. As a result on the evening of the 22nd some 23 He 111's carried out an attack on the Bristol Aeroplane Company at Filton, where for the first time significant damage was caused.

The next most important target in Britain, after the R.A.F. and its associated aircraft industry, was the increasingly vital West Coast harbours and attacks against these, including the Port of Bristol, were also stepped up. On the night of the 23rd some 31 He 111's were dispatched to bomb the harbour installations at Bristol and Avonmouth, while the following night 41 Heinkels took off to make a concentrated attack on the Bristol City Docks. Liverpool, however, was selected for the first heavy raid of the war, and on the night of August 28th the crews of 160 aircraft reported attacking Merseyside, while in a diversionary operation Bristol was targeted by 23 Do 17's. However, due to poor navigation by the inexperienced crews no incidents were reported in the city, the majority of the bombs falling fairly harmlessly in North Somerset.

This high level of activity against Liverpool was repeated on the following three nights, and during the first week of September the bombers of Luftflotte 3 continued to attack the city, with the Port of Bristol again being selected as a secondary target to divert the British defences. Accordingly, the Bristol City Docks, together with Avonmouth and Portishead, were bombed by 31 aircraft on the night of September 1st, with 21 raiders returning on the night of the 3rd to attack Bristol and Avonmouth, and 47 reporting over the same targets the following night, in what was to be the last in this series of raids. The bombing of the west coast harbours was the heaviest yet experienced in Britain, and although Luftwaffe casualties were minimal, no aircraft at all being lost against Bristol, the result was not particularly good, the bombing lacking the concentration required to cause any lasting disruption. However, during the period August 22nd to September 5th a total of 25 people had been killed and 94 injured in Bristol and the surrounding area as a result of the 135.5 tonnes of high explosives, 39 tonnes of oil bombs, and 8820 one kilogramme incendiaries dropped by Luftwaffe bombers.

By early September German attempts at destroying Fighter Command had almost succeeded, but due to inaccurate intelligence the Luftwaffe High Command failed to realise how critical things had become for the R.A.F. Meanwhile, on the night of August 24th German bombers had accidentally dropped bombs on Central London and this, seen by the British as an escalation of the air war, resulted in the War Cabinet sanctioning the first raid against Berlin, which was carried out the following night. Yet again Hitler was enraged, and as a

result London superseded R.A.F. Fighter Command as the primary target of the Luftwaffe. The decision to suspend the attacks on the R.A.F. was crucial to the survival of the country, enabling the fighter force to rebuild and expand, and has been described by some historians as one of the decisive turning points of the war.

Reichsmarschall Hermann Göring assumed direct command of the air offensive against Britain on September 7th, and that afternoon the Luftwaffe flew 372 bomber sorties against targets in East London starting large fires and causing unprecedented damage. This was the start of a series of raids that was to last for 65 days. Many of Luftflotte 3's aircraft previously available to carry out attacks on the West were then ordered to re-direct their efforts to the capital, although small diversionary raids were still undertaken almost every night, principally against Liverpool. On September 10th Göring ordered that if the weather situation prevented large scale attacks against London, then surprise daylight raids by individual aircraft were to be undertaken against targets of the aircraft industry. These missions became known to the Luftwaffe crews as *Pirate Attacks*, and the first such operation carried out locally was that attempted by an He 111 against the Bristol Aeroplane Company on September 16th. By now it had become obvious to the Germans that there was no realistic chance of *Operation Sealion* taking place before the onset of worse weather, and so on September 17th Hitler ordered the indefinite postponement of the invasion.

With Britain emerging victorious from the *Battle of Britain*, German efforts were now concentrated on reducing the R.A.F.'s offensive capability, and two days later instructions were issued to increase the attacks against the British aircraft industry, both by night and day, by reducing the size of the formations engaged in raids on London. As part of the new strategy September 25th saw the start of a planned series of large scale daylight attacks on aircraft factories in Southern England, the operations being carried out in *Geschwader* strength with long range fighter cover provided by twin engined Messerschmitt Bf 110's. The target that morning was the Bristol Aeroplane Company at Filton, which was raided by the 58 Heinkel He 111's, the crews of which reported dropping 81.7 tonnes of high explosives and 6 tonnes of oil bombs. Tragically this resulted in the death of 131 people, of whom 91 were B.A.C. employees, with a further 315 sustaining various degrees of injury. Serious damage was also caused to the plant and it took several months for production of the badly needed new Beaufighter to return to normal.

On September 27th German aircraft again appeared in daylight over

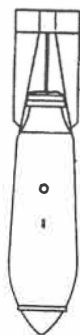
Bristol, ten Bf 110 fighter-bombers escorted by 42 long-range fighters attempting a pin-point attack on the Parnall Aircraft works at Yate. This operation was a complete failure and resulted in the loss of ten German aircraft, all falling to R.A.F. fighters, including one which crashed in Fishponds, the only German aircraft to be brought down in Bristol during World War Two. As the Luftwaffe obviously could not sustain such a high attrition rate this type of fighter-bomber operation was not repeated over the West Country. The large scale daylight bomber attacks against the British aircraft industry, however, continued into October with the Westland plant at Yeovil being targeted on the 7th, but using the faster Junkers Ju 88's. Nevertheless, even these were now suffering unacceptably high losses, the escorting Bf 110's proving no match for the R.A.F.'s single engined Hurricanes and Spitfires, and the onset of poor weather on October 19th gave Göring the excuse he needed to terminate these operations.

The Luftwaffe High Command now ordered more effort to be put into night harassing attacks on the harbour installations at Bristol, Liverpool and Glasgow, with the industrial centres of Birmingham and Coventry as alternative targets, while still maintaining the pressure on London, which was attacked on every night. Meanwhile by day, and when sufficient cloud cover was available, Luftflotte 3 was to continue pin-point *Pirate Attacks* by single aircraft on targets of British aircraft industry, one crew alone making four unsuccessful attempts against the Bristol Aeroplane Company towards the end of the month. By the beginning of November it was becoming obvious to the German leadership that their attempts at battering London to force Britain to the negotiating table were not going to prove successful, the bombing being too scattered over the great area of the metropolis to produce the desired large scale destruction and collapse in civilian morale. This resulted in yet another change in strategy, with a number of heavy attacks being planned against Britain's manufacturing base, to be followed by a concentrated assault on the ports as part of the policy of blockade, which was to be integrated with an all out submarine war at sea. London, however, was still being targeted and was to suffer some 19 significant attacks in the next seven months.

As the fledgling British night defences had so far proved to be totally ineffective against German raiders, it was decided that there was no need for the raids to be concentrated in time. The arrival of each *Gruppe* over the target would therefore be as widely spaced as possible, with individual aircraft bombing at approximately four minute intervals. This, weather conditions permitting, would have the effect of prolonging the attacks, some of which were to last for as long



SC 1800 "Satan"
3500 x 660 mm



SD 1700
3300 x 660 mm



PC 1400 "Fritz"
2836 x 562 mm



SC 250
1640 x 368 mm



SC 500
2010 x 470 mm



SC 1000 "Hermann"
2580 x 654 mm



SD 250
1638 x 368 mm



SC 50
1100 x 200 mm



SD 50
1090 x 200 mm

These German high explosive bombs were deployed against Bristol, and as their designation suggests varied in weight from 50 kg to 1800 kg. Type SC (*Sprengbombe Cylindrich*) were general purpose weapons, SD (*Sprengbombe Dickwandig*), semi-armour piercing, and PC (*Panzerbombe Cylindrich*) armour piercing bombs. In addition some large incendiary weapons employed casings of similar size and shape to the H.E.'s. These were the oil bombs (*Flammenbombe*) 250 and 500 used in 1940, the firepot (*Sprengbrand*) 50 introduced in 1942, and the phosphorus (*Phosphorbrandbombe*) 50 and 250 of 1944.

as twelve hours, thereby causing maximum disruption to the war effort over a wide area of the country. The raiders were to be led by *Firelighter* aircraft equipped with the latest *X* and *Y-Verfahren* radio beam bombing and navigation aids which were to mark the target for the less experienced and well equipped crews of the main bomber force. Chandelier flares were also dropped at the start of major attacks, but these were deployed by a conventional bomber *Gruppe* using standard night navigation techniques. Accordingly instructions were issued on November 8th, ordering preparations to be made for attacks on Coventry, Birmingham, and Wolverhampton, commencing on the night of the 14th with the Coventry raid carried out by 449 aircraft. In addition on November 21st the Luftwaffe High Command ordered Luftflotte 3 to extend the large scale raids to the most important harbours in their operational area.

This sequence commenced with the bombing of Southampton on the night of the 23rd, followed by an attack on Bristol by 135 aircraft starting at about 6.30 p.m. on the evening of the 24th. This was the most serious raid that Bristol had yet experienced and, for most citizens, was regarded as the worst. The bomber crews were briefed to focus their attention on the harbour and industrial plant on both sides of the City Docks, with the intention of eliminating Bristol as an important port supplying much of the Midlands and South of England. Although poor weather over the Continent meant that the attack was of shorter duration than intended, lasting only 4½ hours, for the Germans it was a very successful night with 156.25 tonnes of high explosives, 4.75 tonnes of oil bombs and 12,500 dropped on target for the loss of just two aircraft. Much of the central area of the city was destroyed, most of it by fire, and tragically the raid resulted in the death of 200 people, with a further 689 being injured. The shopping centre of Castle Street, Wine Street and High Street was almost completely gutted along with parts of Clifton, where the University Great Hall, part of the Museum and the Princes Theatre were burned out. There was also serious damage in the Knowle, Temple, Barton Hill and Eastville districts, while other large fires developed in St. Philip's and around St. James' Barton.

The situation was probably made worse because the Fire Guard organisation had yet to be formed, and being Sunday evening, the city centre was deserted with the majority of the commercial premises securely locked. Additionally, at this period, most buildings lacked any easy access to their vulnerable roof areas, where a single incendiary bomb could start a fire almost invisible to observers on the ground. In this manner a number of tall buildings, such as churches,

were burnt down and by midnight the city was blazing furiously, the glow in the sky being visible up to 60 miles away.

Plymouth, London, Liverpool and Southampton were attacked next, while Bristol was the target for a second major raid on the night of December 2nd, which the Germans claimed was to complete the work of destroying the industrial and port installations. Once again poor weather on the Continent caused the attack by 121 aircraft to be concentrated in time, but in a period of just over four hours 120.9 tonnes of high explosives, a tonne of oil bombs and 22,140 incendiaries were dropped. 156 people were killed and a further 270 injured in the city, but German losses were minimal, on this occasion amounting to a single aircraft which crashed on take off. The damage to Bristol was of a more widespread nature than on November 24th, but the main bombing was concentrated astride a line running about due east and west through Redfield, St. Paul's, Cotham and Redland.

Raids on Birmingham and Plymouth followed, but on the night of December 6th Bristol's third large raid within a fortnight took place, some 67 crews claiming to have bombed the city with 77.5 tonnes of high explosives, 0.5 tonnes of oil bombs and 5688 incendiaries. This was a smaller scale effort than the previous two attacks on Bristol as gale force winds on the Continent restricted the activity of the bomber force, and for the third time the operation was of a relatively short duration, lasting only about three and a half hours. Once again German losses were acceptable, and although no aircraft failed to return three crashed on the Continent. Sadly in Bristol it was a different story, and during the course of this attack 100 people were killed and 188 injured, with much damage being caused by fire, the areas most affected being in the vicinity of St. Philip's Marsh, Temple Meads, the City Centre and Cotham.

Between December 8th 1940 and January 2nd 1941 London, Birmingham, Sheffield, Liverpool, Manchester, and Cardiff all suffered at the hands of German bombers. The new year saw the forces deployed against the West Country receiving a boost with the decision to employ the bomber units of Luftflotte 2 in joint operations over Bristol. During the month, however, Luftwaffe efforts were hampered by appalling weather conditions over Britain, where snow, ice, and bitterly cold winds were encountered. For Bristol, January started with a combined attack by 178 aircraft drawn from both Luftflotte 2 and 3, and during this raid, which took place on the night of January 3rd, the town area on both sides of the River Avon was the focus of attention. The attack was the longest yet experienced in Bristol with enemy aircraft operating over the city for about eleven and a quarter hours.

During this time a total of 152 tonnes of high explosives, 2 tonnes of oil bombs and 53,568 incendiaries were dropped, for the loss of just one aircraft which crashed-landed on return. Once again serious damage was caused in the city leaving 149 dead, and 351 injured, the principle areas affected being Bedminster, St. Philip's, Hotwells and Cotham.

The next night a follow-up attack by 103 aircraft from both Luftflotte 2 and 3 was attempted against Avonmouth, the raiders being briefed to concentrate their efforts on the docks and industrial installations situated in the west and north-west part of the town. The returning Luftwaffe crews subsequently claimed to have spent nearly eleven and three quarters hours over the area, dropping 106.5 tonnes of high explosives, 1.5 tonnes of oil bombs and 27,722 incendiaries, and yet again losses were very low with just one aircraft crash-landing on return. However, unknown to the Germans the raid had actually failed to develop at Avonmouth and although a number of fires were caused in buildings of national importance, most had been extinguished by 10 p.m., and only two people had died and five been injured. The bombing had by this time dispersed along the Bristol Channel coast, past Clevedon, and on to Weston super Mare where a sharp attack took place, resulting in the death of 34 people and leaving a further 85 injured.

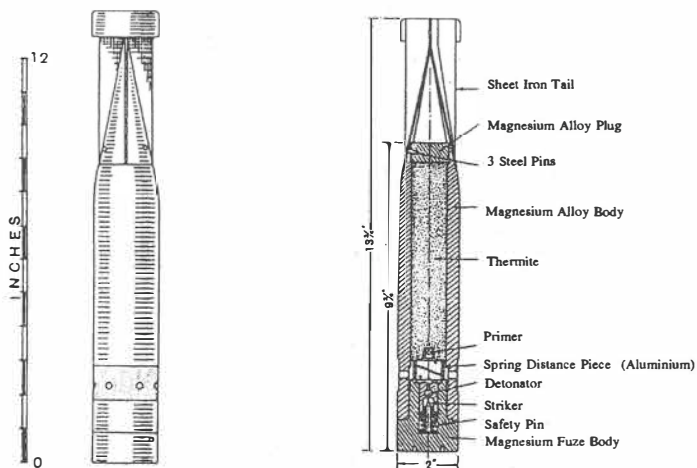
The Luftwaffe now switched their attention to Manchester, London, Portsmouth, Plymouth, and Derby, but photographic reconnaissance eventually revealed that Avonmouth had been virtually undamaged by the January 4th raid, and accordingly was singled out for another large scale attack on the night of the 16th. In addition single aircraft were briefed to attack Parnall Aircraft at Yate and Gloster's at Brockworth. That night a total of 126 bombers from Luftflotte 3 reported over Avonmouth, and 15 over Bristol in a raid lasting a little over nine and a half hours, during which time 158.2 tonnes of high explosives and 54,864 incendiaries were dropped, for the loss of only two aircraft. This time the attack was quite successful, and the Luftwaffe in fact succeeded in causing such serious damage at Avonmouth that January 17th was the only day during the entire war, that, due to enemy action, the docks were prevented from working normally. Mercifully casualties were smaller than in previous large scale attacks, with 18 killed and 109 injured in the whole of the Bristol area.

During the third week of January extremely poor weather set in and locally there was little Luftwaffe activity for the next month, those missions which were flown concentrating on Swansea, Southampton, and London. The unfavourable weather prevailed for much of

February, with many of the grass airfields on the continent becoming waterlogged, severely hampering Luftwaffe offensive operations. As a result, during February only two significant raids were carried out, both against Swansea. The situation did, however, permit a number of *Pirate Attacks* to be attempted against aircraft manufacturing plants, undertaken by low flying bombers taking advantage of the overcast conditions. These sorties became a feature of operations towards the end of the month, starting on the 22nd when an He 111 attempting a raid on the Parnall Aircraft factory at Yate was shot down at Portbury, a victim of Bristol's heavy anti-aircraft guns. Another bomber, however, returned on the afternoon of February 27th to carry out a particularly damaging attack on the Parnall plant, which resulted in the death of 53 workers, with a further 150 being injured.

The poor weather and the *Pirate* operations continued into early March, with another single He 111 making an unsuccessful attempt on the Bristol Aeroplane Company on the 6th. By contrast, the following afternoon the Parnall Aircraft plant was again targeted by the same crew who had caused such devastation on February 27th. Thankfully on this occasion adequate warning of the raider's approach had been received, but even so three workers were killed and 20 injured. Once again, however, the factory suffered serious damage, and as a result production came to a complete standstill, with the total dispersal being immediately undertaken. Now, as the weather improved, it became possible to resume the battle with new offensive blows against Cardiff, London, Portsmouth, Birmingham, Liverpool, Glasgow, Hull, and Sheffield, and by the middle of the month the German bomber force facing Britain had been reinforced and was back to the size it had been at the end of 1940.

On the night of March 16th the harbour installations at Bristol and Avonmouth were again targeted. 164 crews from the bomber units of Luftflotte 3 subsequently reported dropping 164.25 tonnes of high explosives and 33,840 incendiaries over the area in a raid which lasted for nearly seven hours. At Avonmouth the concentration point was a rectangle covering the port area, adjacent warehouses and industrial works, while at Bristol it was centred on the Floating Harbour, down stream of the Bathurst Basin. German casualties on this night were higher than in previous attempts against the Bristol area, but none of the six aircraft lost was brought down by the defences. Bombs in fact fell in many parts of the city, but the main attack was roughly east to west of a line from Stapleton Road Station, through the City Centre to Clifton Down Station. In addition to the City Centre, the areas most affected were Fishponds, Eastville, Whitehall, Easton, St. Paul's,



Perhaps the most deadly German bomb of all was the tiny B1 EI, the standard 1 kg magnesium incendiary. They were dropped in large numbers over many British cities causing a vast amount of damage, and about 300,000 were aimed at Bristol.

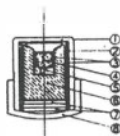
Steel Cylinder Containing Explosive Charge



Section Showing Exploder Container & Adapter



Exploder (Enlarged Section)



Scale cm

- 1) Steel Container
- 2) Cardboard Collar
- 3) Aluminium Container
- 4) Mixture of Lead Azide & Styphanate
- 5) P.E.T.N.
- 6) P.E.T.N./Wax
- 7) Cardboard Washers
- 8) Steel Adapter

To make the B1 EI more effective and difficult to extinguish the Germans fitted small explosive charges into the tail of some of these weapons, causing them to spread burning magnesium after a short delay. The B1 EI ZA, as it was designated, was first employed against Bristol in Late November 1940.

Montpellier, Kingsdown, Cotham, Redland and Clifton. Of all Bristol's major air attacks this was perhaps the worst as due to the poor visibility over the target area the raid had drifted into mainly residential parts, a number of bombers being attracted by the few large fires which had developed. As a result the city's casualty figures were higher than at any time during the war, with 257 killed and 391 injured. Things, however, could have been worse as the bomber crews of Luftflotte 2 had been unable to take part in this raid due to fog over their airfields.

Although poor weather again severely restricted German operations in the latter part of March, attacks were made on Hull, London, and Plymouth, and a small scale raid by some 36 aircraft was carried out on Bristol on the night of the 29th. The targets were in south-east part of the city, with the concentration point between the east end of the Floating Harbour and the two gasholders situated two kilometres east-north-eastwards, and at Avonmouth where the harbour and industrial installations were the objectives. No German aircraft were lost and no incidents were reported in Central Bristol, but at Avonmouth a number of fires were started in the Docks area. Casualty figures that night were low, with six people being killed and 17 injured as a result of the 33 tonnes of high explosives and 13,088 incendiaries dropped by the Germans.

Normal Luftwaffe operations finally re-started after nightfall on April 3rd, when taking advantage of the generally improved weather conditions, an attempt was made against the harbour and industrial installations at Avonmouth by some 76 aircraft of Luftflotte 3, which attacked in a three and a half hour period with 79.8 tonnes of high explosives and 8938 incendiaries. German losses were again minimal, but the one aircraft lost was shot down by a Beaufighter, the victim of the fast improving R.A.F. night fighting organisation. During this raid the fire fighting services in Bristol were so effective that although thousands of incendiaries were dropped, particularly in the section of Bristol from St. Michael's Hill to Redland Green, no major fires developed. A little later, when the high explosive attack developed, it was on a line between the Horseshoe Bend and Filton, while in Avonmouth only a few scattered incidents were reported. Casualties in Bristol that night were relatively light, although 22 unfortunate people lost their lives, and a further 56 were injured.

The raids continued, and the following night 85 aircraft again targeted the harbour and industrial installations at Avonmouth, with two raiding Bristol as an alternative. In the attack, which was of four and a quarter hours duration 80.4 tonnes of high explosives and 19,675

incendiaries were dropped, and although only one German aircraft was lost, it was again the victim of a Beaufighter attack, the burning bomber coming to earth near Weston super Mare. Avonmouth was principally affected, and to a lesser extent the Westbury and Whitchurch areas, but minimal damage was caused at Avonmouth Docks, many of the incendiary bombs which fell in the vicinity burning out harmlessly on high ground in Shirehampton Park. Considering the scope of the raid and the number of high explosives dropped, casualties were remarkably small, amounting to three dead and 21 injured. Glasgow and Liverpool were the main targets on the night of April 7th, but a diversionary raid by 22 aircraft was also carried out against the harbour installations at Bristol, nine bombers subsequently attacking Avonmouth as an alternative. In addition a further 11 aircraft unable to locate their objectives further north, also raided Bristol where nine people were injured, the most serious damage being reported at Horfield. No German aircraft, however, were lost during the operation in which the German crews claimed to have dropped 29.2 tonnes of high explosives and 6442 incendiaries.

On the next three nights German aircraft bombed Coventry, Birmingham, and Tyneside, before the last major effort was made against Bristol. Known locally as the *Good Friday Raid*, this operation was carried out on the night of April 11th by some 15 aircraft from Luftflotte 2 and 138 from Luftflotte 3, the designated targets being the harbour and industrial installations in South West and West Central Bristol, as well as Avonmouth and Portishead Docks. The Luftwaffe were over the city for just over five hours attacking with 193 tonnes of high explosives and 36,888 incendiaries, but German losses at night were now mounting and five bombers were lost, including yet another shot down by a Beaufighter. In Bristol, where 180 people were killed and 382 injured, it was seen as a two phase attack, the first beginning shortly after 10 p.m. when the majority of the incidents straddled a north and south line from Bristol Bridge to Horfield. The second phase, which commenced just after midnight, affected entirely different districts of the City, with St. Augustine's, Bedminster and Knowle, suffering badly, and to a lesser extent Avonmouth and Shirehampton.

Although it was not realised at the time, the main *Blitz on Bristol* had now ended, as the Luftwaffe switched their attention to Belfast, London, Portsmouth, Plymouth, Sunderland, and Liverpool, all of which were bombed before the end of April. The London attack of April 19/20th was in fact the heaviest ever carried out against Britain, some 712 aircraft dropping 1026 tonnes of high explosives and 153,096 incendiaries. Although in early May German bombers raided

Bristol on a number of nights, it was only in relatively small numbers, these aircraft having selected the city as an alternative target, being unable to locate their main objectives on Merseyside and Clydeside.

GB 7352 a

nur für den Dienstgebrauch

Filton

Flugmotorenwerk

Karte: 1:100 000

Engl. Bl. 32b

Geogr. Lage 2° 34' W, 51° 31' N, Höhe ü.d.M. 61 m



Maßstab 1:100000
0 1 2 3 4 5 6 7 8 9 10 Km

Bearbeitet Sept. 1940

Target document *a* the *Kartenausschnitt*, or map extract, for Target 73 52, the Bristol Aeroplane Co.'s Aero-Engine factory at Filton. Copied from a British Ordnance Survey half inch series map, rescaled to 1:1000,000 and overprinted with target details. Issued September 1940.

The most serious of these raids took place on the night of May 7th when as a result of complete cloud cover over Liverpool some 16 aircraft attacked Bristol causing much damage in the Knowle, Bedminster, Clifton and City areas, killing 20 people and injuring a further 84. During the month the Luftwaffe became progressively preoccupied with the forthcoming invasion of Russia, but in order to camouflage the movement of aircraft to the east pressure was still kept up against targets in Britain. Raids were therefore mounted against Liverpool, Belfast, Barrow in Furness, Glasgow, Hull, Nottingham, and Sheffield, culminating on the night of the 16th, by an attack on Birmingham by 111 aircraft. As part of this strategy the use of the minelaying units operating against England was reviewed, and by the end of the month instructions had been issued detailing their temporary deployment against selected land targets, where they were to assist the remaining bomber *Gruppen* by dropping land mines.

One of the Luftwaffe's final efforts was made on the night of May 30th when 34 aircraft attacked Liverpool, with a further 15 making for Bristol, where the crews claimed to have dropped four tonnes of high explosive bombs and twelve 1000 kg land mines. As a result damage occurred in the Clifton, Westbury, Sea Mills and St. Anne's areas where 12 people were killed and 29 injured. Although no land mines actually fell on the city that night, two came down at Kingston Seymour, including one which failed to explode. According to German records very few other land mines were ever aimed at Bristol, but on the night of June 11th a lone He 111 dropped two over Bedminster killing 16 and injuring 77. This aircraft, unable to locate its assigned target in Birmingham, had again selected Bristol as a suitable alternative. By mid-June 1941 the whole of Luftflotte 2, with the exception of IX Fliiegerkorps, together with majority of the bomber units of Luftflotte 3, had completed their move east in readiness for the attack on Russia, which opened shortly before dawn on June 22nd, and with few bombers left in France the raids on the West Country all but ceased. Nevertheless a small number of minelaying aircraft were left to carry out operations against Britain, and for a short time they again turned their attention to the Bristol Channel and Severn Estuary, but even their activities had ceased by the end of November 1941. Their efforts, however, had not been in vain as since July 1940 minelaying aircraft operating in the area extending westward to Nash Point in Glamorgan and Hurlston Point on the North Somerset coast had been responsible for sinking 14 vessels, totalling some 16,687 tons, and damaging a further 12, which resulted in the death of about 40 crew, passengers and gunners.

Although the *Blitz on Britain* was carried out on an unprecedented scale, it failed to bring about the collapse of the nation. Nevertheless, for the loss of just 1.5% of the sorties flown widespread damage had been inflicted on British cities, serious disruption caused to the war effort, and large numbers of men and women tied down in Home and Civil Defence. Throughout the winter of 1940 and spring of 1941 the Luftwaffe had constantly changed targets and this produced, with a few notable exceptions, a lack of concentration of bombing effort which gave the civilian populations time to recover from the raids, and damaged industries the opportunity to repair and disperse. However, as it has since been proved, effective strategic bombing could only be achieved by dropping enormous bomb loads on objectives vital to the war effort, and the Luftwaffe, designed as a tactical weapon operating in close support of the army, had in fact never possessed the necessary equipment to prosecute a long drawn out strategic campaign.

It was hoped that the subjugation of Russia would be completed by the winter of 1941, at which time it was planned to re-deploy the bombers against Britain, starving the country of food and supplies by combined air and sea attacks on British shipping. The tide of war, however, flowed in the Russians' direction and German forces were still tied down in the East in the spring of 1942. By this time R.A.F. Bomber Command had introduced the technique of area bombing to German cities, and on the night of March 28th carried out their first really successful attack of the war when about 30% of the built up area of Lübeck was destroyed. Yet again Hitler's response was to order reprisal attacks against Britain, although precious few aircraft could really be spared for such an undertaking, and on April 14th he ordered that the air war against England was to be given a more aggressive stamp.

He instructed that when targets were being selected, preference was to be given to those where attacks were likely to have the greatest possible effect on civilian life, and besides raids on ports and industry, terror attacks were to be carried out against towns other than London. In spite of a lack of aircraft, only 106 being on strength on April 16th, preparations were made for the raids which were planned to take place during the moonlight period of the last ten days of the month. Following the tactics being so successfully employed by the R.A.F. concentrated attacks of short duration were to be carried out by the Luftwaffe for the first time, in order to minimise defensive action. Operations, predominantly by Junkers Ju 88's and Dornier Do 217's, commenced on the night of April 23rd when a formation of 45 bombers flew to Exeter, returning the following night with 60 aircraft.

Bath was the target on the nights of April 25th and 26th and for these attacks all bomber units of Luftflotte 3 were called upon, including for the first time the training crews of the *IV Gruppen*, some still operating old Do 17's and He 111's. On the first night the Luftwaffe flew 151 bomber sorties to Bath, each aircraft flying two missions, but some raiders mis-identified the target completely, and bombs also fell on the Brislington area of Bristol, where 18 people were killed and 41 injured. On the 26th, Hitler threatened eradication of all British cities, one by one, as a reprisal for each and every R.A.F. attack, and spoke of marking each off Baedeker's famous tourist guidebook as and when it was destroyed. These operations, thereafter became known in both Germany and Britain as the *Baedeker Raids*, and that night some 83 bombers were dispatched to Bath, but on this occasion no incidents were reported in the Bristol area.

For the next two months the Luftwaffe busied itself with attacks on Norwich, York, Exeter, Cowes, Hull, Poole, Grimsby, Canterbury, Ipswich, Southampton, and Birmingham, some targets being raided more than once, but on the nights of June 27th and 28th it was the turn of Weston super Mare. The town had been chosen as a reprisal for the British thousand bomber raid which had just been carried out on Bremen because German intelligence understood that Churchill was to take a short break there on his return from a visit to the United States. 53 bombers subsequently reported over Weston on both nights, but the raids were well concentrated and again no incidents were reported in the Bristol area.

In July the Luftwaffe's activities were directed mainly against ports and targets of the British armaments industry, including Middlesborough, Birmingham, and Hull, and the month started with an unsuccessful attempt on the harbour installations at Bristol on the night of July 1st. 46 German aircrews subsequently claimed to have attacked with 20 tonnes of high explosives, for the loss of one aircraft, but although widespread bombing occurred on the South and South West coasts, and in South Wales, no bombs fell anywhere near Bristol. During the spring and summer of 1942 a number of very small scale experimental daylight attacks had also taken place in poor weather, using both *X* and *Y-Verfahren*. Locally the Bristol Aeroplane Company had been unsuccessfully targeted on April 3rd, while an equally unproductive attack was attempted against Avonmouth on May 23rd.

By the late summer the strength of the units involved in operations over Britain had been seriously eroded as the ever strengthening British defences took their toll. These losses were particularly high among the irreplaceable instructional personnel, in operations which

GB 8351 bc

Nur für den Dienstgebrauch

Bild Nr. 1018 L 78

Aufnahme vom 30. 6. 40

Bristol

2 Trockendocks im Floating Harbour

Länge (westl. Greenw.): 2° 35' 15" Breite: 51° 26' 35" Bildmitte

Mißweisung: - 11' 24' (Mitte 1941) Zielhöhe über NN 20 m

Maßstab etwa 1 : 17 200

Genst. 5. Abt. Dezember 1941

Karte 1 : 100 000

GB/E 32



1. Wapping Dock 89 m lang und 11,8 m breit
 2. Albion Dock 164 m lang und 15,9 m breit
 3. Pumpstation
 4. Werkstätten
- Gleisanschluß vorhanden

GB 41 36 Eisenbahnbrücken über den Floating Harbour
GB 45 53 Ostschleusen am Floating Harbour
GB 52 51 Gasanstalt der Bristol Gas Comp. am Floating Harbour
GB 56 52 Holzlager und Sägemühlen am Floating Harbour
GB 56 54 Großmühle mit Getreidelager am Floating Harbour
GB 55 55 Viehmarkt hart südlich Temple Mead Station

achieved little significant damage to the British war effort. Nevertheless, there was still pressure on the Luftwaffe to continue the reprisals, as the R.A.F. attacks on Germany were becoming progressively heavier. Few bombers, however, could be diverted from the East but the Luftwaffe's high altitude trials unit had received a few examples of a new type of bomber, the Junkers Ju 86R. This aircraft, armed with a single 250 kg bomb, was not particularly fast nor did it carry any armament, but could cruise at heights well above 12,000 metres, out of the reach of most British fighters.

The experimental high altitude attacks on Britain started with a mission to Camberly on the morning of August 24th, followed by sorties to Southampton and Stanstead, while on the 28th Bristol was targeted. The lone aircraft appeared over the city at about 9.20 a.m., its single bomb impacting on a car parked in Broad Weir. As a result of the subsequent explosion one of the three nearby buses was seriously damaged by blast, while petrol from the car's fuel tank was sprayed in a more or less atomized state over the other two which immediately burst into flames. The death toll was horrific with 45 being killed, many burnt to death in the blazing buses, with a further 45 injured. In terms of loss of life this was the single most serious incident to occur in Bristol during the Second World War. The city was once again targeted on September 12th, but on this occasion the lone Ju 86R was intercepted en-route by a specially modified Spitfire causing the enemy aircraft to abort the mission, and return to France with slight combat damage. So ended the highest air battle ever fought over Britain, after which the high altitude bombing experiment abruptly ceased.

Bristol was completely free from attack in 1943, although other southern ports such as London, Plymouth, Swansea, Southampton, Cardiff, and Portsmouth suffered at the hands of the Luftwaffe. It had, however, been planned to bombard the city with unmanned V1 flying bombs launched from accurately aligned concrete ramps which were being constructed in the vicinity of Cherbourg, but Allied bombing and technical development problems ensured that this never took place. As a result, on November 28th 1943, it was announced that a new series of retaliatory attacks on Britain were to be undertaken by conventional bombers. The code name was to be *Ibex*, but in Britain was known as the *Baby Blitz* which was to take the form of concentrated attacks on industrial centres and ports, the principle target to start with, being London. In December 1943 the bomber force facing Britain was reinforced and brought up to a strength of some 550 aircraft, made up mainly of Ju 88's, Ju 188's and Do 217's.

As the standards of training amongst the German crews by then left much to be desired, considerable efforts were made to emulate the examples of R.A.F. Bomber Command by the use of the expert pathfinder crews operating an elaborate route and target marking system. The raids themselves were to be of short duration, heavy and devastating, during the course of which bundles of Düppel radar reflective foil were to be dropped in an attempt to confuse the British defences.

The offensive, which had been planned to open during the full moon period in December 1943 was, of necessity, delayed until mid-January 1944, when operations began with an attack on London on the night of the 21st, the capital continuing to be the target throughout February. These missions, however, produced most unsatisfactory results due to problems with the target marking, due in part to the efficiency of the Radio Counter Measures activity of the R.A.F. In addition, unlike the *Night Blitz* of 1940/41 and, to a lesser degree, the *Baedeker Raids* of 1942, the night defences now had the upper hand. Large numbers of radar controlled anti-aircraft guns, 'Z' rocket batteries and searchlights, together with a well equipped night fighter force directed by a most efficient ground controlled interception radar system, took a heavy toll of the attackers, with 129 aircraft being lost during January and February. Nor were these the Germans' only problems, as the new four engined bomber, the Heinkel He 177, was also proving to be a design disaster, suffering some 50 per cent breakdowns in operational use, many of them involving engine fires.

March saw a further four attacks on London, as well as an unsuccessful raid on Hull on the 19th, followed on the night of the 27th by the first directed against Bristol since 1942. A total of 116 Luftwaffe bomber crews subsequently claimed to have dropped 100 tonnes of bombs on local harbour installations, while a co-ordinated attack was also undertaken against night fighter airfields in the Bristol area by Messerschmitt Me 410 fighter bombers. The attack force, however, lost 13 valuable aircraft, and as the result of continued inaccurate target marking, not one bomb fell on Bristol. In fact incidents were reported over the whole of Southern England, from Hastings to North Somerset, with the highest concentration in the rural areas around Highbridge and Weston super Mare.

The first two weeks of April were quiet, then on the 18th, there was a final manned bomber attack on London, followed on the 20th by another attempt against Hull. From hereon the Germans were more concerned with the build up of shipping and supplies in the various ports from which an invasion of the Continent seemed likely, and

henceforth the Luftwaffe was to concentrate almost exclusively on these objectives. Accordingly the harbour installations at Bristol were again the target on the night of April 23rd, co-ordinated with an attack by Me 410's on night fighter airfields in the Bristol area. A total of 93 crews subsequently reported over Bristol, claiming to have dropped 59.3 tonnes of high explosives and 79.4 tonnes of incendiaries on target, for the loss of 14 aircraft. However, once again no incidents occurred in Bristol, the majority of the bombs being scattered throughout Wiltshire, Dorset, Hampshire, and East Somerset.

For the rest of the month shipping at Portsmouth and Plymouth was attacked, but it was not until the night of May 14th that Luftwaffe bombers again ventured over Britain, once again to bomb the harbour installations at Bristol. A total of 68 aircraft subsequently claimed to have operated over the city in a 35 minute period, with a further 15 Me 410's attacking local airfields. Some 163 tonnes of high explosives were reported to have been dropped on Bristol, with a further 4.65 tonnes deployed against the airfields for the loss of 13 aircraft, but in spite of the German claims only five bombs had actually fallen within the city boundary. These came down in Headley Park, and at Kings Weston where a searchlight site was destroyed, and its attendant killed, the last life to be lost in the Bristol area by enemy action during World War Two. For the inhabitants of Bristol and its surrounding districts the trial by combat was drawing to an end and the *All Clear* at 03.07 hrs on the morning of May 16th 1944 marked the departure of the last German bomber to threaten the area. The remaining German aircraft were now being employed over the South Coast ports where forces were being assembled for the forthcoming Allied invasion of Europe, and following the actual landing on June 6th any chance of their return to the offensive vanished.

It is probable that about 1243 people died and 2903 were injured as a result of Luftwaffe attacks on the City and County of Bristol during World War Two, while a serious loss of life also took place around the two important local aircraft manufacturing plants, with 135 being killed and 335 injured at Filton, and 57 killed and 175 injured at Yate. No census was taken in 1941, but using the 1951 figures it can be calculated that this represented approximately 0.34% of the population, or some 2.39% of the 60,000 civilians killed in the U.K. as a result of aerial bombardment between 1939 and 1945. During the period June 1940 to May 1944 the vital port facilities at Bristol, Portishead and Avonmouth had stayed operational, production in the local aircraft factories had increased steadily, and there had taken place no serious breakdown of civilian morale anywhere in the area.

Although some of the scars from the conflict are still visible 50 years later, and the townscape of the city changed for ever, Bristol emerged in June 1944 battered but triumphant, the victor in its four year duel with the Luftwaffe.

Glossary

Fliegerkorps: An operational command, subsidiary to a Luftflotte, controlling an unspecified number of units.

Geschwader: An operational unit normally comprising three Gruppen, a Staff Flight, and a fourth, non-operational training Gruppe.

Gruppe: An operational unit normally comprising three Staffeln (27 aircraft) and a Staff Flight (3 aircraft).

Luftflotte: Air Fleet. An operational command controlling a number of subsidiary Fliegerkorps.

Luftwaffe: The German Airforce.

Staffel: The smallest operational unit of the Luftwaffe, comprising some nine aircraft.

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